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Aspects of mechatronics and the internet of things

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This presentation is designed to generate discussion among the audience and will cover aspects of the potential and current burgeoning use of the Internet of Things (IoT) in the control and operation of mechatronic systems especially in a manufacturing situation. In a factory environment, there are two additional considerations to the usual systems and software design factors. These are first, company confidentiality and privacy, and secondly the hostile operating environment that causes frequent data outages and communication problems. Both of these are sometimes ignored or down-played by designers and proponents of real-time IoT devices. It is very easy to be swept along in the vogue of commercial cloud-based data repositories, analytics and visualization, and off-site software as part of the factory of the future. Of course, any mechatronic system has the same features and flaws as a factory, which is used throughout as exemplar. The real question is, should designers relegate information services to an unknown mega-source in any real-world mechatronic system be it industrial, medical or transportation oriented? While the cloud may provide a more abstract, secure environment for larger systems should a remote cloud application take be authorized to take over the controls of a nuclear power plant or be able to handle an aircraft flying under duress or an automobile speeding towards a blocked intersection? Many authors have written on the lights out the factory and the factory of the future, where the whole industrial operation from start to finish is accomplished without human intervention. Has the IoT paradigm swept mechatronics design under its spell? There are those for and those opposed to a completely immersive IoT linking the home, workplace, and society. At the conclusion of the presentation, the floor will be open to the audience for comment and discussion.

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